

IN THE CLAIMS:

1. (Currently Amended) A method for ~~[[preparing]]~~ pretreating a positive electrode material for use in a cell of a lithium, lithium-ion or lithium-ion polymer battery, the method comprising:

subjecting a lithiated transition metal oxide positive electrode material having one or more ~~[[water-containing]]~~ hydrolysis product compounds therein to a treatment prior to preparing said cell to convert at least a portion of the ~~[[water-containing]]~~ hydrolysis product compounds on a surface of the oxide to one or more water-free compounds, wherein the treatment includes the following:

- (a) exposing the positive electrode material at a temperature of 0-650°C to a CO₂-containing gas having a partial pressure of CO₂ in the range of 0.0001-100 atm; and
- (b) heating the positive electrode material to a temperature of at least 250°C in the presence of an oxygen-containing gas having a partial pressure of O₂ in the range of 0.01-99 atm.

2. (Currently Amended) The method of claim 1 wherein the one or more water-containing compounds are selected from the group consisting of LiOH, LiHCO₃, 2NiCO₃ · 3Ni(OH)₂ and Ni(OH)₂ on the positive electrode material and the one or more water-free compounds are selected from the group consisting of Li₂CO₃, NiCO₃, NiO, Ni₂O₃ and LiNiO₂.

3. (Currently Amended) The method of claim 1 wherein the one or more ~~[[water-containing]]~~ hydrolysis product compounds are selected from the group consisting of a lithium hydroxide, a lithium bicarbonate, a transition metal hydroxide and a basic transition metal carbonate.

4. (Previously Presented) The method of claim 1 wherein the CO₂-containing gas of treatment (a) has a partial pressure of CO₂ in the range of 0.0002-0.2 atm.
5. (Previously Presented) The method of claim 1 wherein the CO₂-containing gas of treatment (a) is air.
6. (Previously Presented) The method of claim 1 wherein the oxygen-containing gas of treatment (b) has a partial pressure of O₂ in the range of 0.1-1.0 atm.
7. (Previously Presented) The method of claim 6 wherein the oxygen-containing gas of treatment (b) is air.
8. (Previously Presented) The method of claim 1 wherein the oxygen-containing gas of treatment (b) is air.
9. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected to treatment (a) at a temperature of 100-400°C.
10. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected to treatment (b) at a temperature of 250-650°C.
11. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected first to treatment (a), then to treatment (b).

12. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected simultaneously to treatments (a) and (b) at a temperature in the range of 250-650°C.

13. (Previously Presented) The method of claim 12 wherein the temperature is in the range of 300-500°C.

14. (Previously Presented) The method of claim 12 wherein the CO₂-containing gas has a partial pressure of CO₂ in the range of 0.0002-0.2 atm, and the oxygen-containing gas is air with a partial pressure of O₂ in the range of 0.1-1.0 atm.

15. (Previously Presented) The method of claim 1 wherein the positive electrode material is subjected to treatment (b) immediately prior to preparing said cell.

16 -31. (Withdrawn)